



# California Energy Commission

CEC Reliability and Electrification Efforts

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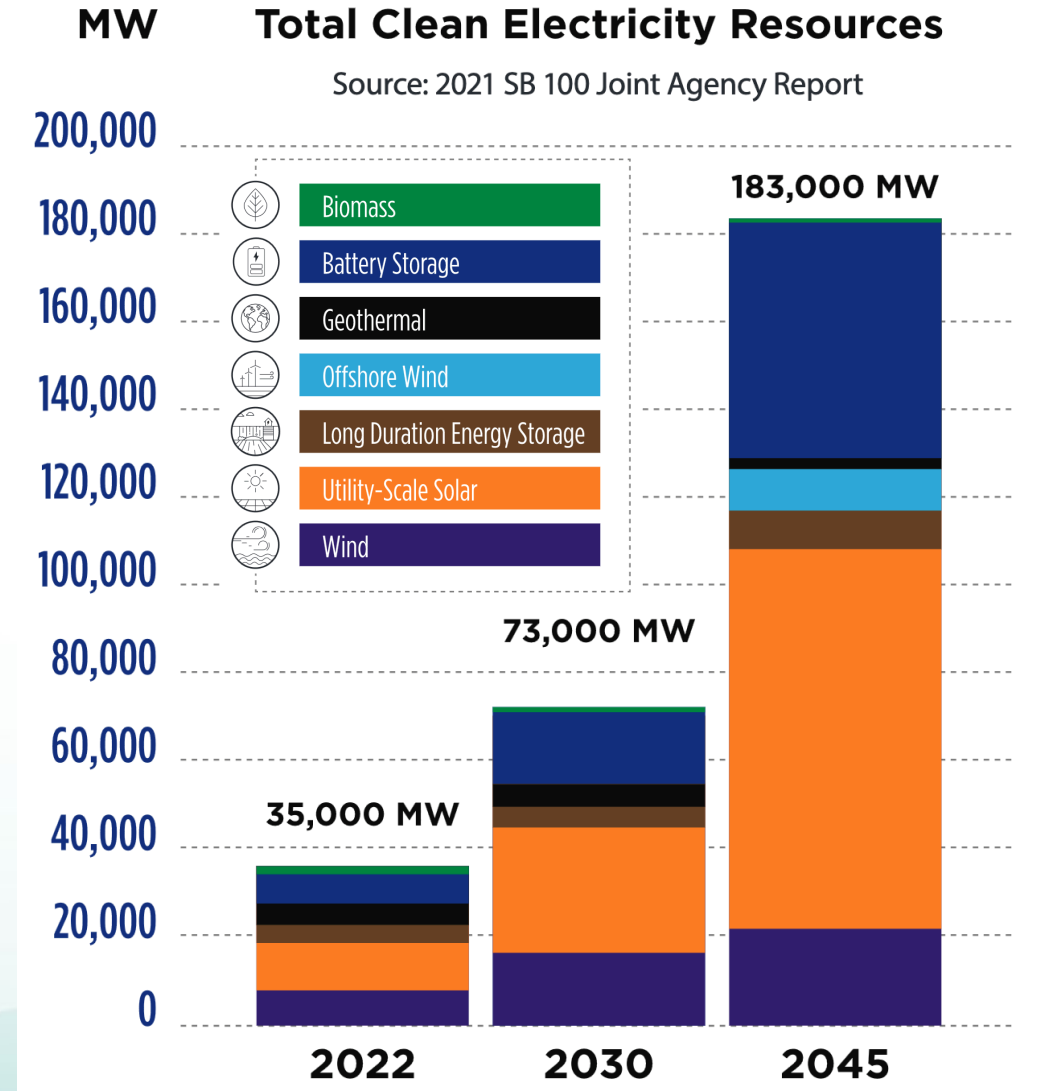


California ISO



# California Goals

- **60% renewable generation by 2030**
- **7000 MW load flexibility by 2030**
- **100% of new vehicles emissions free by 2035**
- **100% carbon-free grid by 2045**





# Provide for Electricity Needs

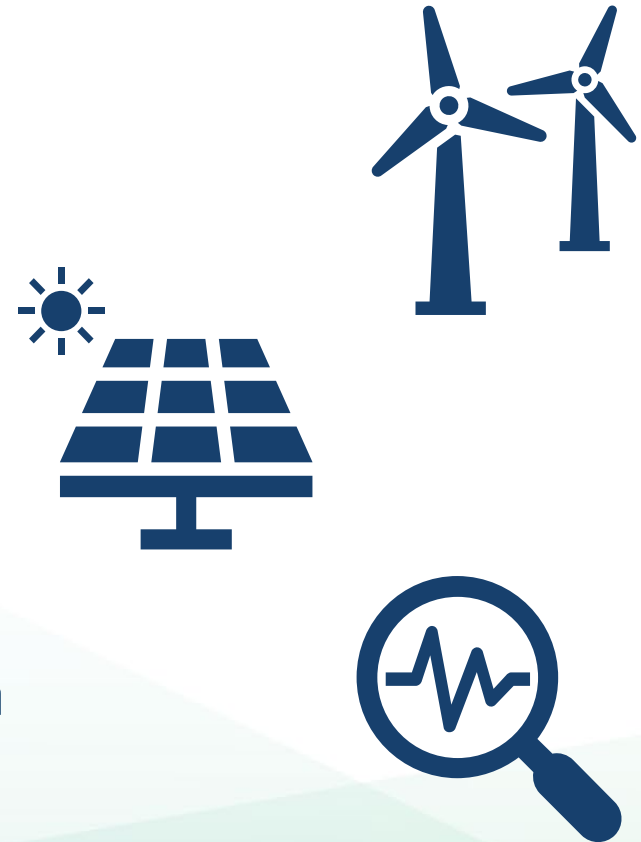
- Capacity, Reliability, and Resilience
  - Generation, Transmission, and Distribution
  - Load Flexibility
  - Energy Efficiency
  - Microgrids
- Decarbonization
  - Electric Vehicles
  - Renewable Generation
  - Distributed Energy Resources
- Research





# Select CEC Projects

- Efficiency
  - Building and Appliance Standards
- Capacity Planning
  - SB100 Reports
  - Integrated Energy Policy Reports
- Research
  - Electric Program Investment Charge (EPIC)
- Load Flexibility and Reliability
  - Demand Side Grid Support Program
  - Distributed Electricity Backup Assets Program
  - Load Management Standards
  - Flexible Demand Appliance Standards





# Load Flexibility





# Load Flexibility Definition

The process of maintaining the electric supply-demand balance by adjusting electrical demand rather than the supply of electricity.



Load Flexibility is also called Demand Flexibility or Load Management



# Load Flexibility Benefits

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- Reduce greenhouse gas emissions
- Improve grid reliability
- Reduce system costs
- Increase customer choice

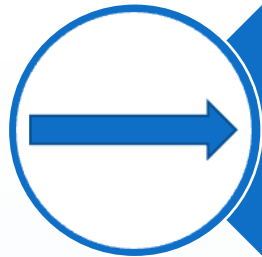




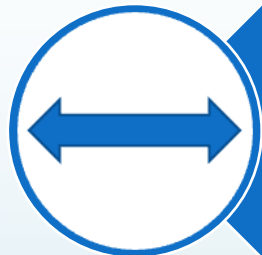
# How to Flex Load



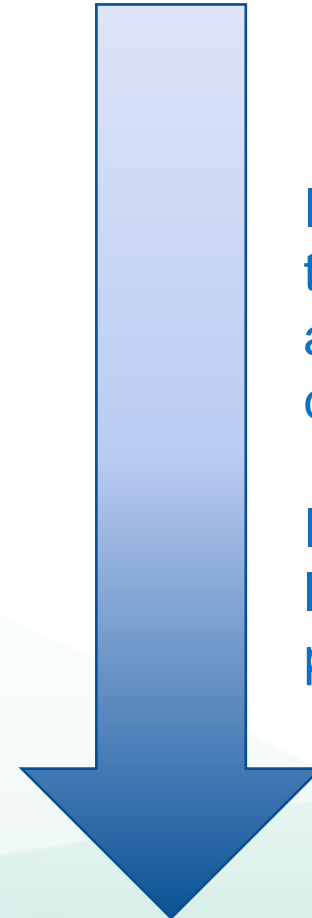
Timer



Automation and one-way communication



Automation and two-way communication



Increasing technological and/or policy complexity

Increasing load flexibility potential



# Load Management Standards



# Adopted Load Management Standards

1

## Rate Database

- Maintain the accuracy of existing and future time-varying rates in the publicly available and machine-readable MIDAS rate database.

2

## Third-Party Services

- Develop a standard rate information access tool to support third-party services (RateID/RIN)

3

## Hourly Rates

- Develop and submit locational rates that change at least hourly to reflect marginal wholesale costs.

4

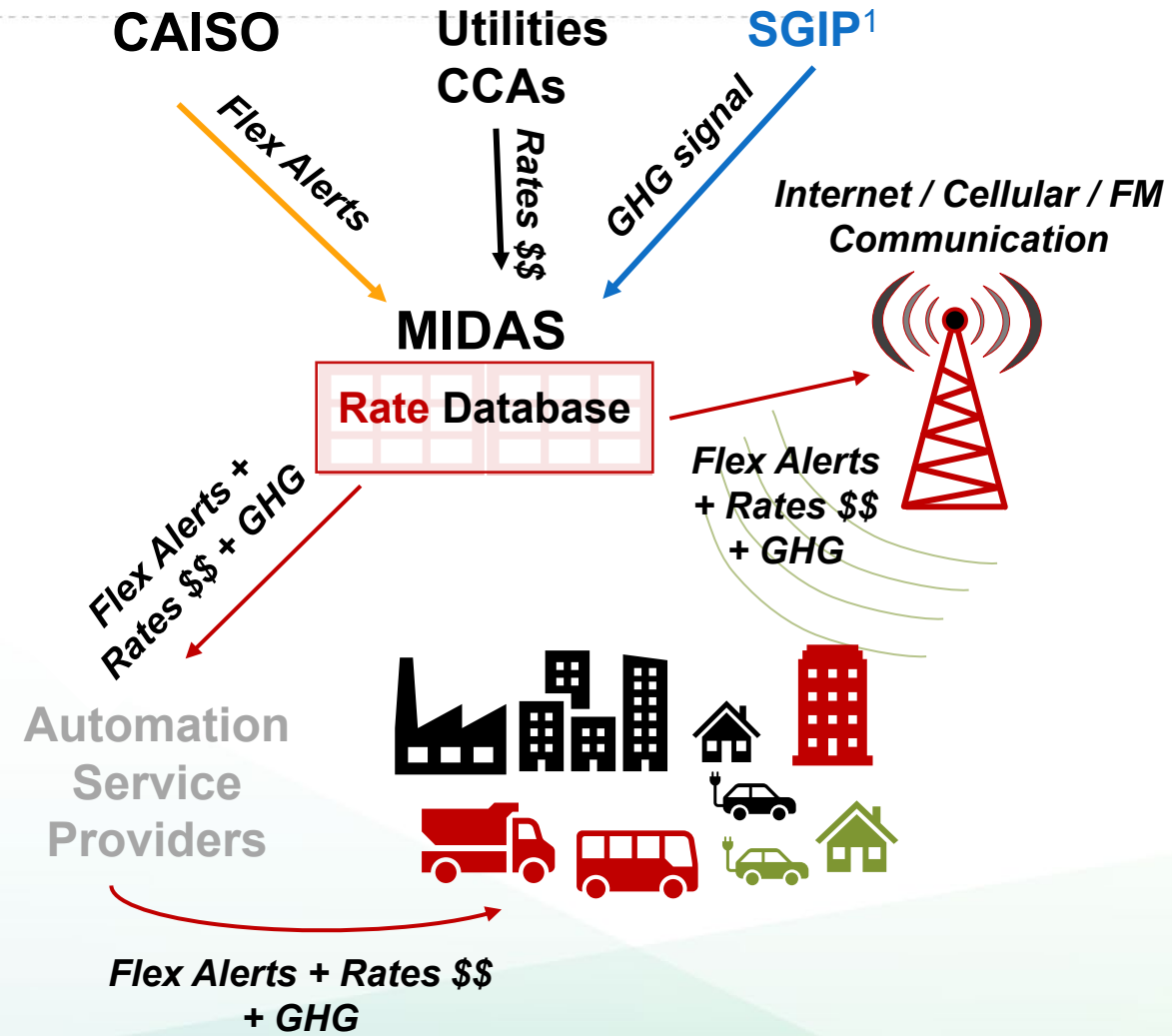
## Customer Education

- Integrate information about new time-varying rates and automation technologies into existing customer education and outreach programs.



# 1. Rate Database

- MIDAS Database available at <http://midasapi.energy.ca.gov>
- Provides access to all time-varying rates from included utilities and CCAs
- Includes Greenhouse Gas and Flex Alert signals
- **Standard:** Utilities upload and maintain all time-dependent rates



<sup>1</sup> SGIP = Self Generation Incentive Program (CPUC-mandated)



## 2. Automation Services ← RIN

- Third-party automation service providers need customer rates to optimize device performance
- CEC developed a standard Rate Identification Number (RIN) specification
- **Standard**: utilities create a single statewide standard platform for delivering customer RIN to authorized providers

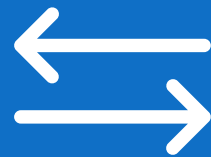
With explicit customer consent



Look up current rate



Compare rates

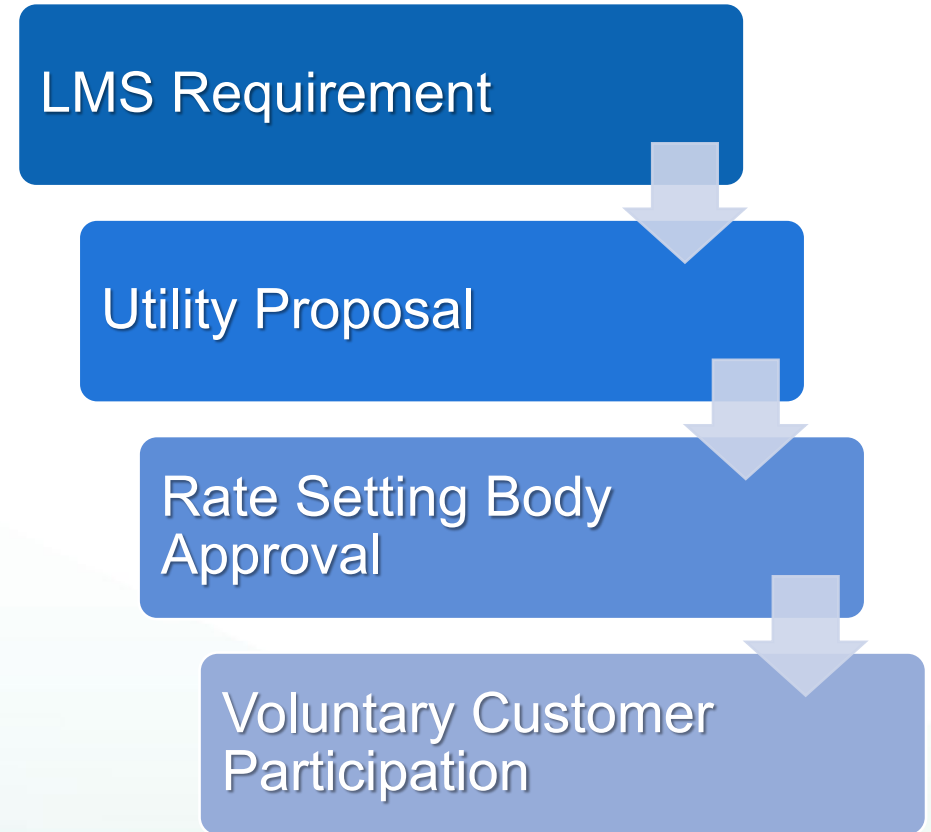


Change Rate



# 3. Hourly Rates

- CEC's MIDAS Rate Database and API enable widespread automation in response to TOU rates
- As customers install automation, the opportunity for more granular flexibility is enhanced
- **Standard**: Provide customers options for responding to hourly or sub-hourly price and GHG emissions signals.





# 4. Customer Education

- Many customers are unaware of price-responsive automation technologies and services
- **Standard**: Utilities must include information about time-varying rates, automation, and third-party service options in marketing and outreach efforts.





# Thank You!

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